REMARKS

This paper is being filed in response to the final official action dated May 28, 2008, wherein (a) claims 1 and 8-16 were pending, (b) claims 1, 8-12, and 14-18 were rejected under 35 U.S.C. §112, 1st paragraph, and (c) claim 13 was deemed allowable.

This paper is timely-filed, as it is accompanied by a petition for an automatic extension of time of three months and concurrent payment of the required fee. This paper is also accompanied by a request for continued examination and payment of the required fee. Reconsideration of the application, as amended, is solicited.

By the foregoing, claim 1 is amended and new claims 17-20 are presented. Claim 1 is amended to recite that the sequence identity is at least 80%. Support for this amendment can be found in the specification at p. 5, line 5. New claim 17 recites that the sequence identity is at least 90%. Support for this can be found in the specification at p. 5, line 5. New claims 18-20 are directed to sequences comprising SEQ ID NO: 1 or 2 and having a particular sequence identity. Support for these claims can be found in the specification and original claims as filed, and no new matter is presented. Thus, claims 1 and 8-20 are pending.

THE REJECTION OF CLAIMS 1, 8-12, AND 14-16 UNDER 35 USC § 112 SHOULD BE WITHDRAWN

Claims 1, 8-12, and 14-16 stand rejected under 35 USC § 112, 1st paragraph for allegedly failing to comply with the written description requirement. The Patent Office contends that the applicants have failed to properly describe which domains of the claimed sequences must be conserved or conservatively mutated to maintain the activity of the full sequences. The applicants respectfully traverse the rejection and request reconsideration in view of the following remarks.

The Patent Office has identified the following considerations for determining sufficiency of a written description: actual reduction to practice, disclosure of structure, sufficient relevant identifying characteristics, method of making the claimed invention, the level of skill in the art, and the predictability in the art (see Action, pp 5-7).

Actual reduction to practice: Applicants have prepared and described in the specification two specific mutants of SEQ ID NO: 2 – SEQ ID NO: 4 and SEQ ID NO: 5. They have further assessed the activity of the mutant of SEQ ID NO: 4 (see Example 7, p 17, line 13- p 18, line 19).

Disclosure of structure and sufficient relevant identifying characteristics: Contrary to the Patent Office's contention, the applicants have provided a description of the portions of the claimed sequences that must be conserved or conservatively mutated. In the specification, the applicants have identified a core sequence (SEQ ID NO: 3) and have provided experimental results for SEQ ID NO: 4, which comprises the core sequence of SEQ ID NO: 3 and is a truncated mutant of SEQ ID NO: 2. Moreover, the applicants have further provided that mutations to introduce unnatural nucleosides can be performed in order to increase stability of the resulting aptamer. For example, the applicants prepared sequence wherein the pyrimidine nucleotides U and C were replaced with analogs where the hydroxyl group (i.e., –OH) of the nucleotide was substituted by an amino group (i.e., $-NH_2$) instead. This substitution results in a nucleoside having increased stability towards nuclease degradation (see specification at p. 5, lines 20-23).

Below is a sequence alignment of the sequences of aptamer 89 (i.e., SEQ ID NO: 1 and 2) and the identified core sequence and mutants thereof.

SEQ ID NO: 1 GGGAG ACGAT ATTCG TCCAT CACCG GACGG GACCA GAGGT GCCGC TCTCC AATTC TCGAC C

SEQ ID NO: 2 GGGAG ACGAU AUUCG UCCAU CACCG GACGG GACCA GAGGU GCCGC UGUCC GACUG AAUUC UCGAC C

SEQ ID NO: 3 ACCG GACGG GACCA GAGGU GC

SEQ ID NO: 4 GGGAG ACGAU AUUCG UCCAU CACCG GACGG GACCA GAGGU GCCGC UGUCC GACAU GGA

SEQ ID NO: 5 ACCG GACGG GACCA GAGGU GCCGC UGUCC G

The aptamer SEQ ID NO: 4 has a truncated sequence but comparable apoptotic activity to that of SEQ ID NO: 2. The skilled artisan, in reviewing the specification, examples, and described sequences, would see that the applicants identified the structure of the apatmers that needed to be conserved, or at least conservatively mutated. Furthermore, the applicants have provided a postulated secondary structure of SEQ ID NO: 2, and have identified that structure H1 may be important but that helix F may not. The experiments comparing the apoptotic activity of SEQ ID NO: 2 and SEQ ID NO: 4 address the importance of helix F, indicating that helix F does not need to be present (see specification at Figure 1 and p. 8, lines 23-30 and p. 17, lines 16-23).

Thus, contrary to the Patent Office's contention, the applicants have identified the portions of the claimed sequences that should be conserved or conservatively mutated and have further shown that such mutants maintain similar functionality. The apoptotic activity of apatmers of SEQ ID NO: 2 and 4 were compared and found to be comparable (see specification at p. 18, Table 2). Moreover, SEQ ID NO: 4 has 80% sequence identity to SEQ ID NO: 2.

The method of making the claimed sequence is acknowledged to be well-established. While the predictability of activity of nucleotides having varied sequences may not be universally acknowledged, for the instant case, the applicants have provided examples and identified the core sequence which afford ample teaching for the skilled artisan to vary SEQ ID NO: 1 or 2 up to 20% and still arrive at a nucleotide having the recited anti-apoptotic activity.

Therefore, the sequence of claim 1, which is directed to a sequence having at least 80% sequence identity to SEQ ID NO: 1 or SEQ ID NO: 2 and further has anti-apoptotic activity is clearly described in the specification as filed. It is submitted that this rejection can be withdrawn.

CONCLUSION

In view of the above amendments and remarks, the applicants believe the pending application is in condition for allowance.

Should the examiner wish to discuss the foregoing, or any matter of form in an effort to advance this application toward allowance, he is urged to telephone the undersigned at the indicated number.

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Respectfully submitted,
Electronic Signature: /Shelley C. Danek, Reg. #57,712/
Shelley C. Danek
Registration No. 57,712
MARSHALL, GERSTEIN & BORUN LLP
233 S. Wacker Drive, Suite 6300
Sears Tower
Chicago, Illinois 60606-6357
(312) 474-6300
Agent for Applicants